ORIGINAL

Kelly A. Evans
Nevada Bar No. 7691
SNELL & WILMER L.L.P.
3800 Howard Hughes Parkway, Suite 1000
Las Vegas, NV 89109
Telephone (702) 784-5200
Facsimile (702) 784-5400

David H. Kramer (Admitted Pro Hac Vice)
William O'Callaghan (Admitted Pro Hac Vice)
WILSON SONSINI GOODRICH & ROSATI
Professional Corporation
650 Page Mill Road
Palo Alto, CA 94304-1050
Telephone (650) 493-9300
Facsimile (650) 493-6811

Attorneys for Defendant GOOGLE INC.

UNITED STATES DISTRICT COURT

DISTRICT OF NEVADA

BLAKE A. FIELD,

Plaintiff,

vs.

GOOGLE INC.,

Defendant.

AND RELATED COUNTERCLAIMS

No.: CV-S-04-0413-RCJ-LRL

DECLARATION OF DR. JOHN R. LEVINE IN SUPPORT OF GOOGLE'S MOTION FOR SUMMARY JUDGMENT

I, Dr. John R. Levine, declare as follows:

1. I have been retained by Google as an expert in connection with the above-captioned case in the field of the Internet and Internet-related issues. I am over the age of eighteen and competent to make this declaration. I make each of the following statements based on my personal knowledge and my expertise, and I could, if necessary, testify to the truth of each of them.

2. Attached as Exhibit 1 is a true and correct copy of the Expert Report that I prepared for this case. Exhibit 1 contains the opinions that I formed in connection with my work on this case. To the best of my knowledge, the statements made in Exhibit 1 are true and accurate.

3. In my Expert Report, I noted that Google's "Cached" link feature is very useful to individuals performing research on the Internet, including teachers, reporters, librarians, law enforcement personnel and lawyers. *See* Expert Report ¶20. I also noted that Google's "Cached" link feature provides benefits to Web site owners. *See id.* ¶¶16-19. In addition, I noted that there are publicly available examples illustrating these points. *See id.* ¶10.e.

4. In my field, when researchers conduct studies of how people are using the Internet's features, we typically examine publicly available Web sites. Attached as Exhibits 2 to 15 are copies of Web pages that I downloaded from publicly available Web sites discussing particular examples of the benefits provided by Google's "Cached" link feature to Web site owners, researchers, academics, and others. These articles are the type of information that is often relied upon by experts in my field in forming opinions and inferences on the subject. These Web pages are useful because they instruct the public on the various ways that one can use Google's "Cached" link feature.

a) Attached as Exhibit 2 is a true and correct copy of a printout from the Montgomery County Public Schools Web site, available at http://www.mcps.k12.md.us/schools/springbrookhs/media/search_the_web.htm.

b) Attached as Exhibit 3 is a true and correct copy of a printout from the Web site for Queen's University, available at http://www.qub.ac.uk/is/ComputingSupport/WebSupport/Search/.

c) Attached as Exhibit 4 is a true and correct copy of a printout from the Web site for Hans Zell Publishing, available at http://www.hanszell.co.uk/google/chapter3.shtml#x.

d) Attached as Exhibit 5 is a true and correct copy of a printout from the Web site for Indiana's courts, available at http://www.in.gov/judiciary/center/ed/library/judcon-03/google.pdf.

e) Attached as Exhibit 6 is a true and correct copy of a printout from the aroundcny.com Web site, available at http://aroundcny.com/technofile/texts/bit040401.html.

f) Attached as Exhibit 7 is a true and correct copy of a printout from the Wired Web site, available at http://www.wired.com/news/business/0,1367,41065,00.html.

g) Attached as Exhibit 8 is a true and correct copy of a printout from the loriswebs.com Web site, available at http://www.loriswebs.com/stop-stolen-content.html.

h) Attached as Exhibit 9 is a true and correct copy of a printout of a page available at http://park.robcol.k12.tr/jroyce/plagbibl2.html.

i) Attached as Exhibit 10 is a true and correct copy of a printout from the computerbytesman.com Web site, available at http://www.computerbytesman.com/tia.

j) Attached as Exhibit 11 is a true and correct copy of a printout from the Wired Web site, available at http://www.wired.com/news/conflict/0,2100,47956,00.html.

k) Attached as Exhibit 12 is a true and correct copy of a printout from the Web site for Goochland County Public Schools, available at http://www.glnd.k12.va.us/resources/vol9no1.pdf.

l) Attached as Exhibit 13 is a true and correct copy of a printout of a page available at http://www.sagerock.com/weblog/2004/08/do-you-use-googles-cache.html.

m) Attached as Exhibit 14 is a true and correct copy of a printout of a page available at http://www.rba.co.uk/tfttr/archives/2001/jan2001.shtml.

n) Attached as Exhibit 15 is a true and correct copy of a printout from the About.com Web site, available at http://websearch.about.com/od/searchtipoftheday/qt/qt420.htm.

I declare under penalty of perjury that the foregoing is true and correct. Executed on September 21, 2005 at Trumansburg, New York.

Dr. John R. Levine

CERTIFICATE OF MAILING

I certify that a true and correct copy of the foregoing **DECLARATION OF DR. JOHN R. LEVINE IN SUPPORT OF GOOGLE'S MOTION FOR SUMMARY JUDGMENT** was served this 27 day of September, 2005, by placing same in the United States mail, postage prepaid, addressed to the following:

Blake A. Field
9805 Double Rock Drive
Las Vegas, NV 89134
Telephone (702) 373-1022
Pro Se Plaintiff

An employee of Snell & Wilmer, L.L.P.

84973.1

Snell & Wilmer
L.L.P.
LAW OFFICES
3800 HOWARD HUGHES PARKWAY, SUITE 1000
LAS VEGAS, NEVADA 89109
(702) 784-5200

CERTIFICATE OF MAILING

I certify that a true and correct copy of the foregoing DECLARATION OF DR. JOHN R. LEVINE IN SUPPORT OF GOOGLE INC.'S MOTION FOR SUMMARY JUDGMENT was served this 3 day of November, 2005, by placing same in the United States mail, postage prepaid, addressed to the following:

Blake A. Field
9805 Double Rock Drive
Las Vegas, NV 89134
Telephone (702) 373-1022
Pro Se Plaintiff

Judith S. Warden
An employee of Snell & Wilmer, L.L.P.

84973.1

Snell & Wilmer
L.L.P.
LAW OFFICES
3800 HOWARD HUGHES PARKWAY, SUITE 1000
LAS VEGAS, NEVADA 89109
(702) 784-5200

Kelly A. Evans
Nevada Bar No. 7691
SNELL & WILMER L.L.P.
3800 Howard Hughes Parkway, Suite 1000
Las Vegas, NV 89109
Telephone (702) 784-5200
Facsimile (702) 784-5400

David H. Kramer (Admitted Pro Hac Vice)
William O'Callaghan (Admitted Pro Hac Vice)
WILSON SONSINI GOODRICH & ROSATI
Professional Corporation
650 Page Mill Road
Palo Alto, CA 94304-1050
Telephone (650) 493-9300
Facsimile (650) 493-6811

Attorneys for Defendant GOOGLE INC.

UNITED STATES DISTRICT COURT

DISTRICT OF NEVADA

BLAKE A. FIELD,

Plaintiff,

vs.

GOOGLE INC.,

Defendant.

AND RELATED COUNTERCLAIMS

No. CV-S-04-0413-RCJ-LRL

EXPERT REPORT OF DR. JOHN R. LEVINE

Snell & Wilmer L.L.P.
LAW OFFICES
3800 HOWARD HUGHES PARKWAY, SUITE 1000
LAS VEGAS, NEVADA 89109
(702) 784-5200

1. I, Dr. John R. Levine, provide the following expert disclosures in connection with the above-referenced matter.

I. Background And Experience

2. I am currently an independent computer industry consultant and author specializing in the Internet and Internet-related issues. I lecture to and consult for numerous clients including IBM Canada, CBS Television, Minnesota Power, the American Institute of Chemical Engineers, Alex, Brown & Sons, AT&T Easylink and Hewlett-Packard.

3. I am a member of the At-Large Advisory Committee for the Internet Corporation for Assigned Names and Numbers (ICANN). I am the chair of the Internet Research Task Force (IRTF) Anti-Spam Research Group. Since 1997, I have been a board member of the *Coalition Against Unsolicited Commercial Email*, an Internet user advocacy group, and I currently run the *Network Abuse Clearinghouse*, a free service that helps Internet users report and deal with abusive online behavior.

4. I have been a network manager for a private network that hosts over 300 Internet domains and websites, totaling over 300,000 web pages, since 1995.

5. I have been the Mayor of the Village of Trumansburg, New York since 2004.

6. I have authored or co-authored over a dozen books on computer issues including: *The Internet for Dummies* (now in its 9th edition, with over seven million copies in print), *Internet Privacy for Dummies* (2002) and *Internet Secrets* (2d Ed. 2000).

7. I have been active in the computer industry for nearly thirty years, working for Interactive Systems Corp. (the first commercial provider of UNIX software) between 1979 and 1984 and Javelin Software (creators of an award winning PC modeling tool) from 1984 to 1987. In 1989, I co-founded Segue Software, currently the leading provider of web and client/server testing software, where I continue to work today as a director and consultant. I received a B.A in Computer Science with a minor in Mathematical Economics from Yale University in 1975, and a Ph.D. in Computer Science from Yale University in 1984. Attached hereto as **Exhibit A** is a true and correct copy of my Curriculum Vitae.

8. I have testified as an expert in deposition or at trial in two cases in the past four years:

a. I was the Commonwealth of Virginia's technical expert and testified at trial in *Commonwealth of Virginia v. Jaynes et al.*, Loudon County Case No. CR0001588501; and

b. I have been deposed as a Hewlett-Packard's expert in *VLIW Technology, LLC. v. Hewlett-Packard Co. and STMicroelectronics, Inc.*, Delaware Chancery Court Civil Action No. 20069-NC.

II. Scope Of Report

9. I have been asked by counsel for Google Inc. ("Google") to provide my opinions related to the following subjects, based on my background and experience and my review of the evidence in connection with the above-referenced litigation:

a. the use and operation of the Google search engine;

b. the availability of links to copies of web pages stored in the Google system cache and its impact on the original site; and

c. the various industry standard methods that may be employed to keep a web page from being cached, with a failure to employ these methods being reasonably viewed as permission to cache a site or page.

10. I intend to rely upon the following as a basis for my testimony in this case:

a. the documents produced by both parties in this case;

b. the deposition testimony of the witnesses in this case;

c. my knowledge of and experience with Internet-related issues;

d. my knowledge of the economics of the Internet; and

e. any publicly-available documents relevant to the issues in this case.

11. It is my understanding that discovery in this case is ongoing. Accordingly, I reserve the right to supplement or amend my opinions in light of any additional evidence, testimony, or information that may be provided to me after the date of this report. I also reserve the right to supplement or amend my opinions in response to any expert reports served by

Snell & Wilmer L.L.P. LAW OFFICES 3800 HOWARD HUGHES PARKWAY, SUITE 1000 LAS VEGAS, NEVADA 89109 (702) 784-5200

Plaintiff. I expect that I may be called as a witness. If that occurs, I may produce or assist in producing exhibits for trial based on the documentation attached to or described in the report, its exhibits, or any supplemental reports and exhibits.

12. For my work on this matter I am being compensated at a rate of $400 per hour.

III. Analysis

A. The Use And Operation Of The Google Search Engine

13. There are over eight billion web pages on the Internet. As a consequence, Internet search engines, which operate as card catalogs of the Internet allowing users to locate information on a particular subject across the vast Internet with a simple search query, are vital to the effective use of the Internet.

14. Google provides one of the most effective search engines available for free to anyone with an Internet connection. One of the means by which Google accomplishes the Herculean task of sorting through the billions of web pages on the Internet and returning search results in milliseconds is by constantly "crawling" the web to build an index of websites. During the indexing process, Google creates and stores a copy of each web page contained in its index in the Google system cache. Once this index is built, the Google search engine can quickly return a search results page containing links to those indexed web pages that it believes are relevant to the user's query. It can also provide "snippets" of each relevant page – a few lines of text from the page – to provide context and show why the web page is relevant to a user's query.

B. The Availability Of Links To Copies Of Web Pages Stored In The Google System Cache And Its Impact on the Original Site

15. Along with the links to the relevant web pages provided by the Google search results, Google, in many instances, provides users the ability to hyperlink to a copy of the web page. It does this by including within its search results a link to the copy of the web page stored in the Google system cache that Google created when it was including the page in its index. The link to the stored or "cached" copy of the web page is provided in a small font beneath both

Snell & Wilmer L.L.P. LAW OFFICES 3800 HOWARD HUGHES PARKWAY, SUITE 1000 LAS VEGAS, NEVADA 89109 (702)784-5200

the link to the original website returned in the search results and the snippet from the page. Google has offered this cache functionality to users of its search services for years.

16. By offering a link to the cached copy of the web pages in Google's index, Google provides a number of important benefits to consumers and website owners.

17. First, the cached copy allows a user to see why a particular web page was returned in response to the user's query of the Google search engine. Because the content on websites is constantly changing, it may be the case that a website changed between the time that the Google search engine indexes the site and the time that a user performed a query. In this case, the search results returned would no longer reflect the content that is currently on the website returned in response to a user's query. A link to the cached copy of the web page used to create the returned search results provides valuable information to the user as to why the Google search engine deemed the website relevant to the user's query. In fact, when Google returns the cached copy to a user, it highlights the user's search terms which might otherwise be difficult for the user to find on the mass of text on a particular page.

18. Second, the cached copy allows users to see the content on a particular web page in situations in which the web server hosting the content is not accessible. The Internet is a vast, complicated network involving numerous telecommunications circuits, pieces of computer hardware and complex computer software. Because of this, transient communication failures (*e.g.*, server reboots, Internet Service Provider outages, server overloads) may occur. During a transient communications failure, the web server hosting the web page returned in the Google search results may be temporarily inaccessible to an end user. The link to the cached copy of the web page returned with the Google search results allows a user to view the page listed in the search results during one of these communications failures, thus providing consumers with a substantial benefit that *a fortiori* they could not obtain by visiting the originating site. By the same token, the link to Google's system cache provides a substantial benefit for the operator of the website, as it allows a consumer to view the site under circumstances where the site would otherwise be unavailable. Thus, the website operator or publisher gets the benefit of visits that it might not otherwise have enjoyed.

Snell & Wilmer L.L.P.
LAW OFFICES
3800 HOWARD HUGHES PARKWAY, SUITE 1000
LAS VEGAS, NEVADA 89109
(702) 784-5200

Snell & Wilmer
L.L.P.
LAW OFFICES
3800 HOWARD HUGHES PARKWAY, SUITE 1000
LAS VEGAS, NEVADA 89109
(702)784-5200

19. Third, the Google system cache allows users to see content on a particular web page when the web page itself is not accessible. Website owners often update the content available on their websites. During these update periods, certain web pages may be inaccessible on web servers that are otherwise still accessible. The link to a cached copy of the web page returned with the Google search results allows a user to view the page listed in the search results even as the corresponding page on the original website is inaccessible. Again, this provides both consumers and publishers with benefits, as it enables visits to a website that might not otherwise have been possible.

20. The functionality of the Google system cache is highly valuable to individuals performing research on the Internet. Copies of web pages stored in the Google system cache can be used to determine the content of websites that are no longer publicly available. The Google system cache can also be used to see how a particular web page has changed over time. This can be particularly useful to teachers, reporters, librarians, law enforcement personnel and lawyers among others. I have used the Google system cache on countless occasions in order to assist in my academic and professional pursuits.

21. In my opinion, the uses of the Google system cache do not negatively impact demand for the original web page. As noted, one principal use of the Google system cache is to view a web page hosted on a web server that is inaccessible due to a communications failure. In this case, there cannot be a negative impact on the market for the original because the original site is ***not available***. The same holds true for an inaccessible web page hosted on an otherwise accessible web server that may still be accessed through the Google system cache. In both of these cases, the website publisher benefits from the presence of the site in the Google cache, as it allows the publisher to receive visits from those who would not otherwise be able to access the site.

22. Another principal use of the Google system cache, tracking the changes to a website over time, clearly does not negatively impact the demand for the original web page, because by definition the cached copy is being compared ***to the current version***.

Snell & Wilmer L.L.P.
LAW OFFICES
3800 HOWARD HUGHES PARKWAY, SUITE 1000
LAS VEGAS, NEVADA 89109
(702) 784-5200

23. I do not believe that providing a link to the copy of a website in the Google system cache materially decreases the number of or benefit from visits to the original site. As described above, people use the Google system cache as a complement to and not a substitute for the original. I am not aware of any appreciable use of the cache copy as a substitute for the original. In fact, as noted, in some cases it actually increases the number of people who get to access the material on the site, and thereby provides the site owner with a benefit.

24. In any event, because of the way the Google system cache operates, even if people were to use it as a substitute for the original website, I do not believe that this use would have an appreciable economic impact on the original website. The copy of a web page in the Google system cache preserves the HTML code of the web page and thus generally will, for example, preserve and present to users advertisements that are pulled from advertising networks. In addition, "third-party hit counters," software put in place by web site designers to track the number of visits to a website, are generally incremented when a cached copy of a website is accessed. Thus, a website owner would generally receive the same economic benefits even if the cached copy was used as a substitute for the original website.

C. The Various Industry Standard Methods That May Be Employed To Keep A Web Page From Being Cached, With A Failure To Employ These Methods Being Reasonably Viewed As Permission To Cache A Site Or Page

25. Given the sheer number of websites and pages accessible on the Internet, it is simply impossible for a search engine to communicate, person-to-person with every website publisher or owner to determine the site's preferences on inclusion in a search engine's listings and/or cache. Recognizing this impossibility, the Internet industry long ago developed standard protocols that allow for such permissions to be communicated in an automated fashion by a website to a search engine. These standards can be found in countless locations on the Internet, including, for example, the website for the World Wide Web Consortium, located at http://www.w3.org,

26. The Internet protocols concerning indexing and caching of websites direct site publishers to include specific code within their sites that can be read by the automated software

programs used by search engines to create their indexes and caches. These automated programs, known as "robots" or "spiders," automatically "crawl" the Internet or particular Internet sites in a manner similar to other Internet users – by sending requests to access a particular web page and receiving content in return. If, in the process of retrieving a website, these automated programs encounter any of the industry-standard directives, they are to comply with the site's directives on a variety of subjects, including directions concerning indexing and caching.

27. Google Web Search's automated software program is known as the "Googlebot." The Googlebot crawls Internet websites to enable Google to create its index. I understand that the Googlebot respects the industry-standard protocols concerning crawling, indexing and caching web pages. I describe some of these protocols below.

28. If a website or web page is not crawled, Google does not provide a link to a cached copy of the site or page. Accordingly, a party can prevent a website from being included in the Google system cache by preventing the website from being crawled in the first place.

29. One method supported by Google to exclude robots from accessing a particular website is set forth in a very simple standard Internet procedure documented at http://www.robotstxt.org/wc/norobots.html. A website need only create a robots.txt file on the server hosting it which includes the following text:

*User-agent: **

Disallow: /

This universal and highly publicized standard has been in existence since 1994. The use of and functionality provided by the robots.txt file is common knowledge for almost anyone publishing a website.

30. Google readily discloses information about the robots.txt standard on its website, including a link to the robotstxt.org website itself. Included on Google's "Webmaster Info" web page, located at http://www.google.com/webmasters, is a clear description of how to implement this method to prevent a web page from being crawled under the heading "I don't want Google to crawl part or all of my site."

Snell & Wilmer L.L.P. LAW OFFICES 3800 HOWARD HUGHES PARKWAY, SUITE 1000 LAS VEGAS, NEVADA 89109 (702) 784-5200

Snell & Wilmer
L.L.P.
LAW OFFICES
3800 HOWARD HUGHES PARKWAY, SUITE 1000
LAS VEGAS, NEVADA 89109
(702) 784-5200

31. Based upon my analysis of a publicly-available Internet archive of Plaintiff's website at http://web.archive.org/web/*/http:/www.blakeswritings.com/robots.txt, the Plaintiff's website included a robots.txt file during the relevant time frame with the following information:

User-agent: *

Disallow:

These commands in a robots.txt file on a website mean that robots are not restricted in any way from accessing that website. In this particular case, the robots.txt file tells all robots and spiders, including the Googlebot, that there are no access restrictions on the www.blakeswritings.com website. Thus, this robots.txt file allows the website to be crawled, its contents to be indexed and its pages to be cached.

32. The presence of a robots.txt file indicates that the individual who configured the web site understood the import of such a file – that is, that search engines were allowed full access to the website.

33. Another well-publicized industry-standard method supported by Google to prevent robots from accessing a website is to include so-called "meta elements," documented for the public at www.google.com/remove.html. For example, Google identifies the following text that a web page designer may include on a web page (*e.g.*, in the header information for a web page) to exclude robots from accessing a particular web page:

```
<META NAME="ROBOTS" CONTENT="NOINDEX, NOFOLLOW">
```

Moreover, Google identifies similar text that a web page designer may include on a web page to exclude the Googlebot – but not other robots – from accessing a particular web page:

```
<META NAME="GOOGLEBOT" CONTENT="NOINDEX, NOFOLLOW">
```

34. A web page designer can also prevent robots from accessing a particular web page by using access controls. For example, if a particular web page is only available through registration or use of a password, then a robot – like other Internet users – will not be able to access the web page (without first registering or obtaining a password).

35. In addition to these methods to prevent Google from accessing, crawling and indexing a site or page, a website publisher may use industry standard protocols to instruct

search engines (or more generally "robots and spiders") not to include a page in any cache. The publisher need only include the following text on a web page that it wants to be indexed but does not want to appear in a cache:

```
<META NAME="ROBOTS" CONTENT="NOARCHIVE">
```

As before, Google also provides and publicizes similar text that a web page designer may include on a web page to prevent caching of a particular web page by Google, but not other robots:

```
<META NAME="GOOGLEBOT" CONTENT="NOARCHIVE">
```

Included on Google's "Webmaster Info" web page, located at http://www.google.com/webmasters, is a clear description of how to implement these methods to prevent a web page from being cached under the heading "I don't want Google to keep a cached version of my page." These techniques are not secrets. They are industry-standard methods documented and described by many industry organizations, including the organization known as the World Wide Web Consortium. They are known or should be known even by inexperienced website operators or publishers. Indeed, many, if not most, companies that assist novices in creating and hosting websites detail these procedures for their customers.

36. Based upon my analysis of a publicly-available Internet archive of Plaintiff's website at http://web.archive.org/web/*/http:/www.blakeswritings.com/index.html, his web site's home page contained this meta element during the relevant time frame:

```
<meta name="keywords" content="short stories story writings writing
blake field I blame anne murray box of macaroni band t-shirt
antiperspirant bass slide broken headphones dogbait drive eyedrops
filthy comforter left foot ink cartidge lotions oil change black cow
ronald reagan will never die oil change room cleaning">
```

This meta element provides suggested keywords for use by search engines, demonstrating that the creator of the site was familiar with meta-elements and their use.

37. It is my opinion that given the industry standard and highly publicized nature of these directives, it is reasonable for a search engine to interpret the absence of such directives on a website as a grant of permission by the site operator or publisher to a search engine to crawl,

Snell & Wilmer LLP
LAW OFFICES
1800 HOWARD HUGHES PARKWAY, SUITE 1000
LAS VEGAS, NEVADA 89109
(702) 784 5200

index and cache the site. Absent such implicit permission, and a system by which permissions can be communicated (or denied) automatically, search engines simply could not operate.

Dated: May 20, 2005

/s/ John R. Levine
Dr. John R. Levine

Snell & Wilmer
L.L.P.
LAW OFFICES
3800 HOWARD HUGHES PARKWAY, SUITE 1000
LAS VEGAS, NEVADA 89109
(702) 784-5200

John R. Levine
Post Office Box 727
Trumansburg NY 14886-0727 USA
Phone: +1 607 330 5711
E-mail: jlevine@taugh.com

Employment

(1987-present) Taughannock Networks (Ta-GANN-ock), Trumansburg, N.Y.

Writer, Lecturer, and Consultant. Wrote or co-authored numerous books including the best-selling *Internet for Dummies* and related titles, with over eight million copies in print. Speaks to many trade and general groups; recent appearances include invited talks at the Federal Trade Commission spam forum and authentication summit, International Telecommunications Union WSIS spam conference, Messaging Anti-Abuse Working Group, Email Technology Conference, and the Internet Law and Policy Forum. Also has testified on spyware for the U.S. Senate Commerce Committee, and consulted extensively with the FTC about the implementation of the CAN SPAM act. Member of Industry Canada Task Force on Spam.

Consults for multiple clients on computer language design, systems and network design and implementation, and e-mail and spam topics.

(1989-present) Segue Software, Lexington, Mass.

Co-founded Segue; participated in software re-engineering from DOS to UNIX, including Lotus 1-2-3 for UNIX and the Norton Utilities for UNIX. After a change in direction, Segue is now a leading provider of Web and client/server testing software. Continues as a corporate director and an informal consultant.

(1993-96) Journal of C Language Translation, Cambridge, Mass.

Edited and published quarterly technical journal about computer language and compiler technology and standards. Contributors included P. J. Plauger, Dennis Ritchie, and many others.

(1984-87) Javelin Software, Cambridge, Mass.

Was one of the authors of Javelin, an award-winning PC modeling and analysis program. Acted as corporate DP director during the year that they needed one. Developed and managed program development building tools and process.

(1979-84) Interactive Systems Corp., Santa Monica Calif. and Cambridge, Mass.

Was a principal developer at Interactive, the first commercial provider of UNIX software, and opened their Boston Technical Office. Was the primary kernel architect for AIX 1.0, the UNIX implementation for the IBM RT PC. Also wrote the original UNIX C compiler and assembler for the RT, and wrote INfort, Interactive's Fortran 77 for 16 bit systems.

Related Activities

(2005-present) Internet Corporation for Assigned Names and Numbers (ICANN) At-Large Advisory Commitee

One of three North American members of the ALAC. The ALAC is charged with representing the entire Internet community outside the various specific domain communities. With some other new members, he's trying to make the ALAC a more effective conduit between Internet users and ICANN.

(2003-present) IRTF Anti-Spam Research Group

Chairs the ASRG. He has rechartered the ASRG, established informal contacts with large Internet providers including ASTA, MAAWG, and Open Group, and set up new working groups. The groups evaluate and experiment with potential anti-spam technology and forward promising ideas to the IETF for possible standardization.

(1997-present) Network Abuse Clearing House (abuse.net)

Operates contact database and complaint forwarding service for Internet users. Currently handles over 50,000 requests per day.

(1997-present) Coalition Against Unsolicited Commercial Email (CAUCE)

Board member of grass-roots organization opposing junk e-mail, with over 13,000 members.

(1995-present) Network manager

Operates a private network hosting over 300 Internet domains and web sites with over 300,000 web pages, and 500 e-mail users.

(1986-present) Moderator, comp.compilers usenet group

Moderates technical interest group on compilers (programs that translate among different computer languages). Estimated readership of 100,000.

Public Service

(2004-present) Mayor, Village of Trumansburg N.Y.

Elected mayor of his village (pop. 1500) in upstate New York. Previously was a member of Village governing board and served as Water and Sewer Commissioner. Deals with other municipal utilities regulation, notably cable franchise and telecommunication towers, construction management, municipal finance, and other administrative and management duties.

(2000-2004) Member, Board of Trustees, First Unitarian Society of Ithaca N.Y.

Elected member of church board. Also serves as chair of finance committee and web master.

Publications

Books (incomplete but representative list)

qmail, 2004, O'Reilly.

The Internet for Dummies, 9th edition, Wiley Publishing, 2003 (with Carol Baroudi and Margaret Levine Young).

Internet Privacy for Dummies, Wiley Publishing, 2002 (with Ray Everett-Church and Margaret Levine Young).

Windows XP: the Complete Reference, Osborne/McGraw Hill, 2001 (with Margaret Levine Young and others).

Linkers and Loaders, 2000, Morgan Kauffman/Academic Press.

Windows Me: the Complete Reference, Osborne/McGraw Hill, 2000 (with Margaret Levine Young and others).

E-mail for Dummies, 2nd edition, IDG Books, 1998 (with Carol Baroudi, Margaret Levine, and Arnold Reinhold).

Internet Secrets, 2nd edition, IDG Books, 2000.

Graphics File Formats, 2nd edition, Windcrest/McGraw-Hill, 1994 (with David Kay).

Programming for Graphics Files in C and C++, 1994, John Wiley.

lex & yacc, 2nd edition, 1993, O'Reilly (with Tony Mason and Doug Brown).

Understanding Javelin Plus, 1987, Sybex (with Margaret Levine Young and Jordan M. Young).

Articles (incomplete but representative list)

"Why Programmers Hate the 8086 and 80286", *Microprocessor Report* 4(13): 10-15 (August 8, 1990).

"386 Architecture Overcomes 286 Defects", *Microprocessor Report* 4(14): 6-8 (August 22, 1990).

"An Overview of the Yale Gem System," *Software Practice and Experience* 12(12): 1133-1145 (1982).

Education

Yale University, New Haven, Conn.

B.A., 1975, Computer Science. PhD, 1984, Computer Science, advised by A.J. Perlis. Thesis was *A Data Base System for Small Interactive Computers*.

Revision date: 2005/05/19 01:24:20

CERTIFICATE OF MAILING

I certify that a true and correct copy of the foregoing EXPERT REPORT OF DR. JOHN R. LEVINE was served this 20th day of May, 2005, by placing same in the United States mail, postage prepaid, addressed to the following:

Blake A. Field
3750 Doris Place
Las Vegas, NV 89120
Pro Se Plaintiff

Lance G. Kavanaugh

84973.1

Snell & Wilmer
LLP
LAW OFFICES
3800 HOWARD HUGHES PARKWAY, SUITE 1000
LAS VEGAS, NEVADA 89109
(702)784-5200

Use a search engine when you have narrowed your topic.

Google	Developed at Stanford University, Google is fast and has no advertising. Google ranks search results by how often other pages on the Web link to the page. Google stores many web pages in its cache to retrieve for you as a back-up in case the page's server temporarily fails
Google Scholar	Search for scholarly literature, including peer-reviewed papers, theses and books
Scirus	A **science-specific** search engine
FREE **(Federal Resources for Educational Excellence)**	Educational resources supported by U.S. government agencies. Check the *Help with Search* link for suggestions on how to find what you are looking for
Teoma	Teoma groups results in categories to help you identify useful sites quickly and provides collections of links created by experts

Use a subject directory when you are searching for information about a general topic or browsing for an idea.

Librarians' Index to the Internet	An annotated and searchable subject directory of more than 10,000 internet resources chosen and evaluated by university librarians
High School Hub	Subject guides for English, foreign languages, math, science, and social studies
Pinakes	Provides links to major subject gateways

A large amount of information on the Internet is found in specialized databases and directories which are not picked up by search engines - this is called the Invisible Web.

	A directory of speciality search engines and searchable

Complete Planet	databases
Invisible Web Directory	A directory of searchable databases

Queen's University Belfast

Information Services
Computing Support

Home
Need Help
A-Z of Services
Student Computing
Queen's Online
Telephone Services
About Us
Queen's Homepage

Computing Support
Web Service
Search
Link checking/site mapping
FormMail
Web Caching
FTP

Back

Search

Why use Google Search?

- The Schools & Departments structure page, generated from the Planning Office organisational structure database, contains an overview of the entire academic and administrative structure of the University. When looking for information contained within a specific unit, this page can be useful for finding the appropriate website or information quickly.
- The *quicklinks* from the Information For pages can be useful for finding information quickly when it is not initially clear which unit or department of the University is responsible for it. However, these rely to a large degree on anticipation of what website users might be looking for, and cannot be expected to cover all possible circumstances.
- When time is of the essence and the information needed can be clearly defined in a word or two, searching is undoubtedly faster than browsing through a directory of information such as those mentioned above (cf. the difference between using Google and Yahoo to find information on the wider internet).
- The various websites inside Queen's University contain a lot of "hidden extra" information, i.e. not part of the corporate website nor within the formal structure of schools and departments websites. Examples are detailed technical reports and papers on research group websites, information on local events deep within student club and society websites, tutorials and course notes that lecturers have made freely available on the internet, or extensive personal websites maintained within the schools and departments structure by enthusiastic individuals. Often the only feasible way to find this information is by searching.

How to search using Google Search

Search Homepage

- The Search Homepage is the starting point for searching all websites in the qub.ac.uk domain
- A few other sites that don't end in qub.ac.uk but are hosted at Queen's, are also included in the search
- Best starting point if you are not sure which unit of the University the information you are searching is contained within
- User interface is the same as for Google and users familiar with using it should have no difficulties

Site-specific Searches

Many sub-sites (departments and schools etc.) within Queen's implement a site-specific search, also using the Google facility. If the sub-site is large, this can be a very important navigation tool within the site. If a site has its own Google search, a link to it will normally be in the top right or bottom left of the home page.

After searching a sub-site, a site-specific query term will appear in the search box, e.g. searching for 'google' on the library site it would look like

google site:www.qub.ac.uk/lib Google Search

If it is necessary to refine the search, it is important that the `site:xxxx` query term is left there and only the search term (on the left hand side) changed. If the `site:xxxx` is deleted then the whole of the qub.ac.uk site will be searched.

Additional Search Hints & Tips

The Basic Search

To enter a query, type in a few descriptive words and press the **Enter** key or click the **Search** button for a list of relevant results.

Google uses sophisticated text-matching techniques to find pages that are both important and relevant to your search. For instance, Google analyzes not only the candidate page, but also the pages linking into it to determine the value of the candidate page for your search. Google also prefers pages in which your query terms are near each other.

Spelling

A single spelling suggestion is returned with the results for queries where the spell checker has detected a possible spelling mistake.

Note: Currently, the spell checker supports only US English.

Synonyms

Synonyms are other words that have the same or similar meanings. They are displayed as "Other suggested searches" on the results page.

Sorting by Date

The **Sort by Date** feature sorts and presents your search results based on date. The date of each file is returned in the results. Results that do not contain dates are displayed at the end, sorted by relevance.

Automatic "and" Queries

By default, Google only returns pages that include all of your search terms. There is no need to include "and" between terms. For example, to search for engineering product specification documents, enter:

engineering product specifications Google Search

To broaden or restrict the search, include fewer or more terms.

"OR" Searches

Google supports the logical "OR" operator. To retrieve pages that include either word A or word B, use an uppercase "OR" between terms. For example, to search for an office in either Belfast or Newry, enter:

office belfast OR newry [Google Search]

See Your Search Terms in the Results

Every Google search result lists one or more excerpts from the web page to display how your search terms are used in context on that page. In the excerpt, your search terms are displayed in bold text so that you can quickly determine if that result is from a page you want to visit.

Does Capitalization Matter?

Google searches are **not** case sensitive. All letters, regardless of how you enter them, are understood as lower case. For example, searches for "george jones", "George Jones", and "George jones" all return the same results.

Does Google Observe Stop Words?

Google ignores common words and characters known as stop words. These include most pronouns and articles. Google automatically disregards such terms as "where" and "how" , as well as certain single digits and single letters. These terms rarely help to narrow a search and can significantly slow searching. If you want to use stop words in your search, use the "+" sign or enclose your phrase containing stop words in quotation marks. Make sure that you include a space before the "+" sign.

For example, to search for Annual Report Version I:

annual report version +I [Google Search]

You can also include the "+" sign in phrase searches.

Does Google Use Stemming?

To provide the most accurate results, Google does not use "stemming" or support "wildcard" searches. Rather, Google searches for exactly the words that you enter into the search box.

For example, searching for "airlin" or "airlin*" will not yield "airline" or "airlines.". If in doubt, try both forms, for example: "airline" and "airlines."

Refining Your Search

Since Google only returns web pages that contain **all** of the words in your query, refining or narrowing your search is as simple as adding more words to the search terms you have already entered. The refined query returns a specific subset of the pages that were returned by your original broad query.

Excluding Words

You can exclude a word from your search by putting a minus sign ("-") immediately in front of the term you want to exclude. Make sure you include a space before the minus sign.

For example, the search:

bass -music Google Search

will return pages about bass that do not contain the word "music."

Phrase Searches

You can search for phrases by adding quotation marks. Words enclosed in double quotes ("like this") appear together in all returned documents. Phrase searches using quotation marks are useful when searching for famous sayings or specific names.

Certain characters serve as phrase connectors. Phrase connectors work like quotes because they join your search words in the same way double quotes join your search words. For example, the search:

father-in-law Google Search

is treated as a phrase search even though the search words are not enclosed in double quotes. Google recognizes hyphens, slashes, periods, equal signs, and apostrophes as phrase connectors.

Restricted Searches

You may also narrow searches by restricting queries in certain ways.

Restrict Type	Query Syntax	Example
to a given location on your site	allinurl; allintitle; inurl; intitle	allinurl:google help see Advanced Operators for details
to specific domains	site:	site:google.com see Advanced Operators for details
to specific file types like Excel spreadsheets, PDF docs, etc.	filetype:	filetype:pdf

Directory Restricting
To restrict the directories searched, enter a URL that drills down through the directory structure to the directories or files to be searched. For example, the query `[google.com/manual/]` restricts the search to everything at the manual level. If the trailing slash is not included, as in `[google.com/manual]`, then all subdirectories are also searched.

Advanced Operators

Google Search supports several advanced operators, which are query words with special functions. A list of the advanced operators with explanation are provided below.

cache:
The search engine keeps the text of the many documents it crawls available in a backed-up format known as "cache." A cached version of a web page can be retrieved if the original page is unavailable (for example, the page's server is down). The cached page appears exactly as it looked when the crawler last crawled it and includes a message (at the top of the page) to indicate that it's a cached version of the page.

The query `[cache:]` shows the cached version of the web page. For instance, `[cache:www.google.com]` shows the cached page of Google's homepage.

Note: There can be no space between `cache:` and the web page URL in the query.

If you include other words in the query, those words will be highlighted within the cached document. For instance, `[cache:www.google.com press releases]` shows the cached content with the words "press" and "releases" highlighted.

info:
The query `[info:]` returns all information available for that particular URL. For instance, `[info:www.google.com]` shows information about the Google homepage. Note there can be no space between the `info:` and the web page URL.

site:
If you include `[site:]` in your query, the results are restricted to those websites in the given domain. For instance, `[help site:www.qub.ac.uk/directorates/InformationServices]` finds pages about help within `www.qub.ac.uk/directorates/InformationServices`. `[help site:am.qub.ac.uk]` finds pages about help within `.am.qub.ac.uk` URLs.

Note: There can be no space between the `"site:"` and the domain.

link:
The query `[link:]` enables you to restrict your search to all pages that link to the query page. To do this, use the `[link:sampledomain.com]` syntax in the search box.

For example, to find all links to the Library's main page, enter:

link:www.qub.ac.uk/lib | Google Search

allinurl:
If you start a query with `[allinurl:]`, the search is restricted to results with all of the query words in the URL. For example, `[allinurl: google search]` returns only documents that have both "google" and "search" in the URL.

Note: `[allinurl:]` works on words, not URL components. In particular, it ignores punctuation. Thus, `[allinurl: foo/bar]` restricts the results to page with the words "foo" and "bar" in the URL, but doesn't require that they be separated by a slash within that URL, that they be adjacent, or that they be in that particular word order. There is currently no way to enforce these constraints.

inurl:
If you include `[inurl:]` in your query, the results are restricted to documents containing that word in the URL. For example, `[inurl:google search]` returns documents that mention the word "google" in their URL and mention the word "search" anywhere in the document either in the URL or anywhere else in the document.

Note: There can be no space between the "inurl:" and the following word.

Note: `[inurl:]` works on words, not URL components. In particular, it ignores punctuation. Thus, in the query `[google inurl:foo/bar]`, the `inurl:` operator affects only the word "foo," which is the single word following the `inurl:` operator, and does not affect the word "bar." The query `[google inurl:foo inurl:bar]` can be used to require both "foo" and "bar" to be in the URL.

Putting `[inurl:]` in front of every word in your query is equivalent to putting `[allinurl:]` at the front of your query. For example, `[inurl:google inurl:search]` is the same as `[allinurl: google search]`.

<Contents

Go to ...

III
Google's Web Search

Using Google for African Studies Research is published as an adjunct to ***The African Studies Companion: A Guide to Information Sources*** 3rd revised & expanded edition

Many of those seeking information through Google don't use it to maximum effect and make no attempt to improve their search techniques, or to gain a good grasp of Google's many features, how its search engine works, and how to use the different search operators to fine tune search queries. Many users of Google could significantly improve their search efforts and track down the information they seek by learning a bit more about the many simple and advanced strategies that Google offers to narrow or broaden searching and to refine search terms.

The tips and examples below, together with the checklists of the important points to bear in mind as you commence a search, will enable more effective Google Web searching, and help you find information more rapidly.

This guide does not, however, cover the full range of Google's search offerings and other features (e.g. Froogle, Google Catalogs, Google Wireless, Calculator, Glossary, or the intriguing Google Zeitgeist at http://www.google.com/press/zeitgeist.html), but only those that are relevant for academic research and, more specifically, for research on Africa and African studies.

^top

How to search with Google & the Google Toolbar

You can search with Google

- from the Google home page at http://www.google.com;
- by making the Google search page your browser's home default page; or
- if you use Windows, via the Google Toolbar in Microsoft Internet Explorer for Windows; or
- if you use Macintosh OS X, via the integrated Google search box in Safari.

You can download the Google Toolbar for Microsoft Internet Explorer for Windows at http://www.toolbar.google.com and install it with or without its advanced features. Safari can be downloaded for free from http://www.apple.com/safari/. There is currently a petition that aims to persuade Google to make the Toolbar available for the Macintosh, see http://www.gopple.org.

If you don't want to install the Google Toolbar, or don't use Internet Explorer or Safari and prefer other browsers, there are a number of alternative options. For example, the Mozilla Firebird browser has a built-in Googlebar http://googlebar.mozdev.org. Mozilla's current release (version 0.8) emulates all of the basic search functionality of the Google Toolbar, allowing users to access easily almost all Google's specialty searches from one toolbar.

The Google Toolbar's current version (August 2004) is 2.0.113. It is available in a number of languages (including Arabic, in a Beta version), see http://toolbar.google.com/?fix=en. For more information generally, visit the Google Toolbar Help pages at http://toolbar.google.com/help.

The Toolbar's advanced features give you access (i.e. extra search buttons) to other Google search services such as **Google Image Search**, **Google Groups**, **Google News**, the **Google Directory**, and the **I'm feeling lucky** button; and you can use its highlighting and word-finding features to quickly locate terms within the pages of the search results. A useful feature is a Search History, which lets you repeat previous recent searches without having to type the words in again. Additionally, you can use the toolbar to block pop-up windows (including those irritating pop-up ads), but you can still view any pop-ups you want to see by holding down the Control (CTRL) key, and you can tell the Google blocker to allow pop-ups from particular sites. (Safari has its own pop-up blocker, independent from the Google Toolbar.)

The advanced functionality in the toolbar is optional, and by going to the Google Toolbar menu, selecting "Help", and then selecting "Privacy Information" you can disable it by deactivating the "Page Rank Display" features. With the advanced features disabled no information about the page you are viewing will be sent to Google unless you explicitly request more information about that page (such as with the "Cached Snapshot", "Backward Links" or "Similar Pages" features).

The Toolbar also displays the Google page ranking (see **Google's page ranking and indexing system**), and page information features such as a "Translate this page", which currently translates to and from six European languages (see **Language tools and local Google sites in African countries** below).

How many of the advanced features you want to include in the Toolbar is entirely up to you, and you can set your preferences in the Toolbar Options menu.

***Tip*:** you don't need to move the mouse into the Google search box. Just press

ALT-G (which moves the cursor to the search box), type in your search terms, and then hit ENTER.

^top

Setting your preferences

- On the Google Preferences page http://www.google.com/preferences you can customize your searching preferences, which can be adjusted at any time later on. All it takes is a click of the "Save Preferences" button each time you make changes – but you will need to remember that these are global preferences, applying across most of Google's services such as **Google Groups**, **Google News**, etc. (Note: setting or re-setting preferences will work only if cookies are enabled in the preferences in your browser.)

- ***Interface language:*** this relates to the language in which Google displays its search page, display tips, and buttons. The default is English, but you can select your preferred language for the Google interface. Google currently offers over 80 interface languages – including, tongue-in-cheek, "languages" such Bork Bork Bork! (ze language of ze Sweedish chef who puts ze cheeken in de oven in de Muppet show); Elmer Fudd (the cartoon character in Looney Tunes, who tells you to be vewy vewy quiet because he is hunting a wabbit); Klingon (the language of the aliens in Star Trek), or Pig Latin (the language for adults who want to be daft, or the language choice of children who don't want their parents to know what they're talking about.)

- ***African interface languages***: African interface languages for the Google home page (including buttons, display messages, and the Advanced Search page) currently offered (August 2004) are Afrikaans, Amharic, Sesotho, Somali, Swahili, Tigrinya, Twi, Xhosa, and Zulu.

- ***Search language:*** not to be confused with ***Interface language*** above, restricts the languages that should be considered for searches (the default is "any language"). See **Language tools and local Google sites in African countries** below).

- ***SafeSearch filtering:*** blocks pages with explicit sexual content. The default is "Use moderate filtering" which blocks explicit images but not explicit language. Other choices are strict filtering or no filtering.

- ***Number of results:*** Google displays 10 results per page in default mode, and for more results you click on the results page 1, 2, 3, etc., at the foot of the page. However, if you expect a fairly large number of results this can be a bit tedious, and to increase the number of results for rapid scrolling click on Advanced Search, where you can increase them to up to 100. While Google's default of 10 results per page provides the fastest results, if you prefer a larger number as default – and it won't take much longer to load – you can set this in the Google Preferences; or you can do so temporarily for a series of searches for which you want to see a larger number of results per page, and then later revert to the default setting.

- ***Results window:*** enabling this feature in Google Preferences will open the search results in a new window when clicked on. This can be useful, especially when conducting prolonged research, as it prevents you from losing your place, and it will always leave the Google window open to return to the search results.

> ***Tip***: if you don't have this feature enabled you can always make the contents of a search result appear in a new window. If you are using Internet Explorer for Windows, hold down the SHIFT key while clicking on the link; alternatively, open the page in a new window by right-clicking the mouse and then select "Open in New Window". Other browsers have similar capabilities that are accessed with various key/mouse combinations.

^top

Language tools and local Google sites in African countries

You can translate foreign-language pages into English using Google's "Translate this page" tool next to the search results. On Google's Language Tools page at http://www.google.com/language_tools?hl=en you can also translate entire pages, or parts of text, written in French, German, Italian, Portuguese and Spanish into English, or vice versa. Bear in mind, though, that this is translation by machine and you can't rely on it for accuracy. At best, it may be a passable translation; at worst, it may be only vaguely comprehensible and give you just the gist of what appears on a foreign-language Web page. Relatively short phrases or sentences translate better on the whole, single word translations work very well for the most part, but translations of entire Web sites can be more comical than accurate.

Examples:

The future of African studies is bright

translates as:

Die Zukunft der afrikanischen Studien ist hell
Le futur des études africaines est lumineux, or
El futuro de estudios africanos es brillante

A slightly more complex translation task, for a book title, does well too:

Africans in the Industrial Revolution in England: A Study in International Trade and Economic Development

translates into

Afrikaner in der industriellen Revolution in England: Eine Studie im zwischenstaatlichen Handel und in der ökonomischen Entwicklung
Africains en révolution industrielle en Angleterre: Une étude dans le commerce international et le développement économique
Africanos en la revolución industrial en Inglaterra: Un estudio en comercio internacional y el desarrollo económico

For two African proverbs, one does well:

Only a fool tests the depth of the water with both feet

Nur ein Dummkopf prüft die Tiefe des Wassers mit beiden Füssen
Seulement un imbécile examine la profondeur de l'eau avec les deux pieds

Solamente un tonto prueba la profundidad del agua con ambos pies

but is rather less successful for the other

When elephants fight it is the grass that gets trampled
Wenn Elefanten kämpfen, ist es das Gras, das trampled erhält
Quand les éléphants combattent c'est l'herbe qui obtient piétinée
Cuando los elefantes luchan es la hierba que consigue pisoteada

A translation into German or French of the *African Studies Companion* home pages at http://www.africanstudiescompanion.com generates a pretty crude "translation", but is just about comprehensible.

For some reason, the quality of the "translations" seems to be marginally better when they are translated from English into other languages rather than vice versa, as these three examples of translations into English, from French, German and Italian, rather strikingly demonstrate (and it doesn't seem to like French accents much!):

Original text:

Publiée par les éditions Karthala, *Politique Africaine* est une revue pluridisciplinaire d'analyse du politique en Afrique. Créée au début des années 1980 en rupture avec les approches dominantes, elle s'est imposée en France et à l'étranger, comme une publication de référence pour l'ensemble de la communauté "africaniste" internationale.

English translation:

Published by the Karthala editions, African Politique is a multi-field review d? analyse of the policy in Africa. Created at the beginning of the years 1980 in rupture with the dominant approaches, it s?est imposed in France and on l? étranger, like a publication of reference for l?ensemble of the community? africanist? international

Original text:

Das Institut für Afrika-Kunde widmet sich der wissenschaftlichen Untersuchung und Dokumentation der aktuellen politischen, wirtschaftlichen und gesellschaftlichen Entwicklungen in Afrika südlich der Sahara.

English translation:

Institut for Africa customer dedicates itself to the scientific investigation and documentation of the current political, economic and social developments in Africa south the Sahara.

Original text:

Africa e Mediterraneo è un trimestrale che dal 1992 presenta dossier di approfondimento di temi legati all'economia, alla storia, alla cultura e alla società dei paesi africani.

English translation:

Africa and the Mediterranean are a quarterly one that give 1992 introduce dossier of deepening of topics legacies to the economy, the history, the culture and the

society of the countries Africans.

From Google's Language Tools pages you can also visit Google local domains for individual countries – for Africa, currently (August 2004) those in Burundi, Côte d'Ivoire, Democratic Republic of the Congo, Congo (Brazzaville), Djibouti, Egypt, The Gambia, Lesotho, Malawi, Mauritius, Namibia, Rwanda, Saint Helena, Tchad, and Uganda. Keep in mind that if you use one of these local domains for searching, any preferences you will have set for the main Google.com domain will not be operative, as each local domain is configured separately.
[**Update November 2004**: a Kiswahili language service is now offered by Google Kenya at **http://www.google.co.ke**.]

^top

Google and foreign language characters

Assuming you are using an English keyboard, and using Windows, searches in Google for terms containing special language characters such as German umlauts or French accents (diacritics) can be a bit cumbersome. Unlike in some other search engines, in Google a term with an accent does not match a term without one or vice versa.

So, if you are a Windows user – Macintosh users are rather better served here, as accents are typed easily from the keyboard – you will need to copy and paste characters with accents into the search form (or enter them via the ALT key) etc., to find all relevant results. However, for the most comprehensive search, it is best to search with and without the diacritics if you want more than an exact match, or also add the OR search operator (see **Using the OR operator** below).

Alternatively, if you are conducting a search consisting primarily of terms in, say, French and/or published in French-speaking countries, it may well be the best strategy, initially at least, to restrict your search to pages in French in Google Preferences (see **Setting your preferences**). At the completion of this search exercise you will need toremember to set them back to "any language" and press "Save Preferences".

Examples:

développement économique Côte d'Ivoire
will find 79,000 results,
but, without the accents,
developpement economique Cote d'Ivoire
will find a mere 5,130.

However, sometimes the number of results can be rather puzzling, as this example shows:
afrikanische Kunst München
shows 26,400,
while using "ue" as a substitute for "ü", i.e.
afrikanische Kunst Muenchen
generates 35,800 results;
using the OR operator (see **Using the OR operator** below)
afrikanische Kunst Muenchen OR München
shows 47,200 results;
yet by adding the additional OR operator for the English spelling of München (Munich)
afrikanische Kunst Muenchen OR München OR Munich
actually generates marginally fewer, a total of 46,000 results.

For searches for organizations or institutions, it doesn't seem to make much difference. For example:
Österreichische Forschungsstiftung für Entwicklungshilfe
with or without quotation marks, shows this as the first result, while
Oesterreichische Forschungsstiftung fuer Entwicklungshilfe
finds it as well, but lower down the search results.

Note: the above translation examples are indicated in upper and lower case, but Google is not case sensitive (see **Important points to remember – and the dos and the don'ts** below).

^top

Some general points to bear in mind

- With its superior page ranking methods and criteria, and with its consistent cycle of Web crawling, a Google search will not only lead to sources of interest, but can also bring up links to *unpublished* material cited on Web pages – for example, unpublished papers cited in academics' CVs.

- Google does not only search content, it can also become a launching pad to online Usenet newsgroups covered by **Google Groups**, where specialist questions might possibly be answered by someone with detailed knowledge of the field, with the proviso that the answers may not necessarily be reliable.

- Google presents your search results in order of relevance based on its Web crawling, indexing, and sophisticated page ranking techniques (see **Google's page ranking and indexing system**), which computes a score for each page, and which in turn is based on numerous factors and what Google calls *metrics*, i.e. a piece of information about a page. This includes, for example, where and how the search terms appear on a page, factors such as word proximity, as well as more arcane metrics as they relate to information retrieval and analysis. To compute a score for a page Google says that it combines more than a hundred metrics in order to determine page rank.

- What Google considers to be the most relevant result will be shown as search result no. 1, and at the top of the page it shows how many results it has found. It gives you ten results per page. You can browse through the search results ten results at a time and then hit the > next at the foot of the page, but it may be quicker to click on the Advanced Search menu and change the number of search results to a larger number which can then be scrolled more rapidly. (Or you can adjust it in the Preferences, see **Setting your preferences. *Number of results***).

^top

Important points to remember – and the dos and the don'ts

- Much will depend on how you choose your search terms, which will determine which pages will appear in the result, and the order in which they appear. Imagine what result you want, and search for words that are likely to appear on the pages you want, not for a description of the page, or the Web site, unless you want to track down names of Web sites that contain precisely the same words as your search terms (see **intitle:** search).

- Try to pick words that are unique to the topic you are investigating, and construct your query as precisely as possible.

- For example, a good approach is to try to think of search terms that are specific or unique enough to avoid your being inundated with too many irrelevant results but at the same time that are broad enough not to miss anything that might be useful and relevant to the enquiry.

- While using search terms that are unique, i.e. that relate only to the specific topic of the search, may not be practical in many cases, narrowing the search to an exact phrase (or part of a phrase) that might appear in the pages or documents you're searching for could lead to more satisfactory results (see **Using quotation marks** below).

- Experiment by using search terms with or without quotation marks, and refine your searches by using alternative search terms that are either more or less specific.

- Always bear in mind that Google may not be able to differentiate between words that have multiple meanings.

- Don't use questions as search queries, as you might do for some other search engines, such as Ask Jeeves.

- For the most part, it is prudent to avoid search terms describing the *form* in which you want information, e.g. "papers on", "articles about", "discussion of", etc.

- Google lets you search for up to a maximum of 10 words, but for better results confine your search to a few precise terms.

- Bear in mind that Google's Boolean default is AND. This means that if you enter multiple search words without modifiers such as OR – what Google calls Search operators (see **Advanced Search & Google search operators** below) – it will search and display results for pages matching *all* the search terms.

- Google ignores certain common words that appear in virtually every Web page, such as "a", "about", "an", "are", "at" "by", "from", "I", "in", "of", "that", "the", "this", "to", "what", "when", "where", "who" or "will", etc., which it calls stop words. If you are looking for something specific that contains a stop word put the search terms in quotation marks (see **Using quotation marks** below), which tells Google to treat them as one unit.

- Google is not case sensitive, i.e. it does not distinguish between CAPITAL and lower-case letters in search terms (except for the OR operator, see **Using the OR operator** below): it assumes that all your search terms are lower case. However, if by force of habit you key in certain words in both upper and lower case (e.g. "African Studies" vs. "african studies") it won't affect the search results.

- Google ignores most punctuation in a search query except for apostrophes, and the double quotation marks used as Google search operators. Hyphenation is not important and it will find the words with or without hyphens.

- It will search for some characters, e.g. the ampersand &, and has recently started searching for the Dollar $ sign when it precedes a number. It can

also search for a range of numbers (with or without commas), and number searches can be combined with other search terms.

- Singular vs. plural form: Google will search for either the singular or plural form of search terms you enter. However, it is not always entirely consistent, and may in fact search for singular/plural variants without telling you. This is probably the result of its stemming (word variations) technology, which means it will search not only for your search terms but also for words that are similar to some or all of them. Overall, it is probably better to use the singular form, but if in doubt use both, or conduct separate searches for each form.

^top

Other factors to consider

- ***Search term order and proximity:*** the search term order for multi-term queries can affect results. Google tends to retrieve the results of the search by listing pages containing the search terms in the same order as they appear in your search query. It also considers the proximity of search terms within a page, and will favour results that have your search terms near to each other on the Web pages it finds.

- ***Multiple results:*** when you look at your search results you will notice that some results are indented. Google does this because many sites would produce thousands of occurrences of a search term, so, instead of attempting to display them all, Google shows only the first two from each site. It adds a link that offers "More results from ..." that site; click this to see all the results from that particular site.

- ***First 10 or 20 results:***be mindful that if the first page of 10 results, or the first two pages of 20 results, don't show very satisfactory results, the chances of turning up anything relevant and worthwhile on subsequent pages are probably not very good, and it is better that you refine your query using some of the special Google search operators (see **Advanced Search & Google search operators**) discussed below.

- ***Wildcards*:** Google supports a wildcard word – using an asterisk [*] sign – inserted into a phrase, or what they call "stemming" (to mean anything) in other computer programs. The wildcard will act as a substitute for any whole word you don't know – for example, in a book title, quotations or poetry – but not as a stand-in for *part* of a word. You can also use two (or more) asterisks [**] to signify two (or more) missing words, but you must be careful to include enough words in the phrase or quotation to find unique results. (*Note:* wildcards are not counted as part of the 10 words search limit).

- ***Accuracy of spelling**:* there may be occasions when you are not sure of the correct spelling (especially of proper names), or when you make a mistake typing in the words. If Google can't find a precise match for the spelling you provided and thinks you have misspelled it, it may offer a suggestion for an alternative spelling, "Did you mean ...", which will appear at the top of the search results page. Bear in mind, though, that if the names are actually spelt incorrectly on Web pages, Google will of course show those results. Google can also get it wrong if enough people misspell the word on the Web!

^top

I'm feeling lucky search

If you click this search method or button (which you will need to activate under Options if you are using the Google Toolbar) it will lead you to the page of the first search result, i.e. the page that Google considers most relevant. It won't actually show a search result, but it will take you straight to the relevant home page, if a home page exists.

"I'm feeling lucky" is quite useful if you know the precise name of an organization, institution, library, company or association, etc.

For example, the search terms

african studies association
will lead you direct to the [US] African Studies Association's home page at http://www.africanstudies.org/, although it finds it just as easily in ordinary search mode where it comes up as the first result of over a million and a half hits, picking up other occurrences of "african", "studies" and "association".

Exactly the same happens, for example, for

african literature association,
african studies companion,
or *africa confidential*.

It is slightly different, for example for

journal of modern african studies
for which the first search result shows the JSTOR (Journal STORage) page for the archived issues of the journal, and the second result the Cambridge University Press's pages devoted to this journal. Similarly, "I'm feeling lucky" also leads to the JSTOR pages because it is the top result in regular search mode.

Two further examples: for

university of florida libraries
"I'm feeling lucky" sends you straight to the home page at http://web.uflib.ufl.edu/, while ordinary Google Web Search shows it as result no. 1. And, for

scarecrow press
it will lead you direct to the home page of this publisher at http://www.scarecrowpress.com/, which is also the first result in regular search mode.

If you are fairly certain that a Web site does exist for an organization, and that the name is spelt correctly, "I'm feeling lucky" is pretty dependable on the whole. However, if a Web site does *not* exist, Google can also get it completely wrong, and the "I'm feeling lucky" search result can lead you to a Web site that, while containing the search words in the query, may be completely irrelevant.

Unless you are sure of, and type in correctly, the officially recognized name for an organization or institution, the "I'm feeling lucky" option is not usually a good route. For example, for

university of ibadan
it comes up as the first result in the search results, or leads direct to the University of Ibadan Web site if you hit "I'm feeling lucky". However if you type in

ibadan university
it appears as the fifth result in regular search mode, and can't find it in "I'm feeling lucky" because it isn't result no. 1; instead, it gives you what it thinks is the next best result, a link to a book title *Africana Catalogue of the Ibadan University Library, Nigeria*, available at All.Bookstores.com.

Another example:

Want to go straight to the top? Entering the words

president south africa
and clicking the "I'm feeling lucky" button will lead you directly to the Presidency Web site of President Thabo Mbeki and Deputy President Jacob Zuma http://www.gov.za/president/;

president sierra leone
will take you to the Sierra Leone State House site and the Office of the President of Sierra Leone Ahmad Tejan Kabbah http://www.statehouse-sl.org/; and

president kenya
will lead you to the Web site of the Office of the President of Kenya, Mwai Kibaki,at http://www.officeofthepresident.go.ke/, although I haven't tested to see whether this works equally well for the presidents of *all* African countries!

^top

Advanced Search & Google search operators

Below I set out some of the many Google search operators and how they work. However, it is not really essential to learn them by heart. All you need to do is to click on to Google's Advanced Search page. This brings up a form with drop-down menu choices for most types of advanced searches. Thus even the novice Web searcher can perform quite complex searches without the need to acquire Boolean search skills. From the Advanced Search page you can also restrict results to specific languages, domains, file formats, and more (see **Additional commands and special syntaxes** below). Moreover, you can *mix* advanced search operators for a single query, e.g. you can type in search terms in three advanced search fields, with "all the words" with the "exact phrase", as well as with "at least one" of the words.

First, a word about search term order and word proximity:

As indicated earlier under **Other factors to consider** above, Google says that word order can affect multi-term queries, and that the order in which the terms are typed will affect the search results. Unfortunately, it doesn't tell you how to formulate a search query to take advantage of this fact. However, for searches containing both geographic terms (e.g. the name of an African country) and subject/topic terms, it doesn't seem to make a significant difference, certainly not for the first 50 results.

Example:

sierra leone women rights legal status
generates 48,100 results (using the apostrophe, i.e. *sierra leone women's rights legal status*, produces slightly less, a total of 40,900).

Rearranging this query as: